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1989-90
Geological Science Field Trips

Lick Creek Quarry in the Ferne Clyffe Area

October 14, 1989
WOODSTOCK AREA
McHenry County

The landscape of the Woodstock area in northeastern Illinois was drastically changed by massive, slow-moving glaciers that flowed across the region repeatedly during the Pleistocene Epoch, which began more than 1.6 million years ago. Higher parts of the preglacial landscape were worn down by these tremendous masses of ice and snow, while old bedrock valleys and low sags were filled with debris carried in by the glaciers and left behind as they receded. The last glaciers melted away just 15,000 years ago, at the end of the Wisconsinan glaciation.

In the Woodstock area, surface features formed largely by the Wisconsinan glaciers are well displayed. Several prominent ridge called end moraines, trend northwest to southeast across the area. Scenic "knob and kettle" topography typical of glacial terranes ha developed along portions of the moraines. Peat bogs, which formed in some of the kettles, now provide a significant economic resource for the region. Other landforms and sediments associated with th the glaciers include kames, eskers, outwash sands and gravels, and lake deposits. Good rock and mineral specimens transported by the glaciers from northern areas may be collected from some of the coarser gravel deposits.

An abandoned stone quarry in the southwestern part of the county contains the only bedrock exposures in McHenry County. Here ca be found fossiliferous dolomitic limestone of Ordovician age, deposited in shallow seas that covered the midcontinent region about 440 million years ago. Overlying these rocks are nonfossiliferous Silurian dolomite strata.

Meet at: Woodstock High School, 501 West South Street, Woodstock, two blocks south and about four blocks west of the courthouse

November 4, 1989
MT. VERNON AREA
Jefferson County

The Mt. Vernon area, located slightly north of the center of souther Illinois, is in a region of relatively low surface relief known as the Mt. Vernon Hill Country of the Till Plains Section. Although the surfac topography reflects the ancient, eroded bedrock surface, the bedroc relief is subdued by a thin drape of glacial drift left by Illinoian-ag glaciers, which melted away nearly 250,000 years ago. Postglaci erosion has further modified the landscape.

Bedrock of late Pennsylvanian age, deposited in shallow seas that covered the midcontinent region some 290 million years ago, is exposed in some road- and stream-cuts. Locally, thin limestone from the "Coal Measures" formerly was quarried for agstone and crushed rock for roads. Coal was strip-mined in the southeastern part of the county several years ago. Deep shaft mines in the southwestern part of the county produced over 4 million tons of coal last year value at about $116,000,000.

Mt. Vernon is a nerve center of the oil industry in the Illinois Basin. Numerous oil well pump-jacks dot the landscape, attesting to the importance of this mineral resource to the economy of the area and the state. During 1987, approximately 1.3 million barrels of oil valued at nearly $22,100,000 were recovered in Jefferson County.

Meet at: Mt Vernon High School, 320 South 7th Street, Mt. Vernon, one block south and four blocks east of the courthouse.

Abandoned stone quarry in the Woodstock area

April 21, 1990

FERNE CLYFFE AREA

Johnson County

The Ferne Clyffe area in the scenic Shawnee Hills, or "Illinois Ozarks," of extreme southern Illinois has recently been geologially mapped in detail by ISGS scientists. The field trip area is situated along the prominent south-facing escarpment of the upwarped edge of the Illinois Basin. The sand bodies that form the steep cliffs were deposited about 315 million years ago in a great river delta complex that formed at the shore of a shallow sea, which covered much of the midcontinent region. Rock strata here, along the southern margin of the Illinois coal fields and the Illinois Basin, contain minable coals.

Forces deep within the earth's crust "folded" some of the rock strata millions of years ago. Other layers ruptured and formed faults when one side of the break moved up or down relative to the other. Some of these folded and faulted rocks have been exposed by stream erosion or highway cutting.

Ferne Clyffe lies 3 to 4 miles southwest of the southernmost advance of the Pleistocene continental glaciers. Ice sheets of the Illinoian glaciation reached the area more than 250,000 years ago. Although glacial tills are thin and discontinuous across the northern part of the field trip area, windblown silt or dust (loess) derived from glacial deposits mantles the entire area and is the parent material for modern soils.

There will be opportunities for good fossil collecting in the area.

Meet at: Big Rocky Hollow parking and picnic area, Ferne Clyffe State Park. The park is located on the west side of Ill. Route 37, about 1.6 miles south of the I-57 spur in Goreville.

May 12, 1990

JOLIET AREA

Will County

The Joliet area of northeastern Illinois lies along the boundary between the Wheaton Morainal Country to the east and north and the Kankakee Plain to the south and west. The topography of the Wheaton Morainal Country includes a series of broad, concentric ridges that encircle Lake Michigan. These ridges, known as moraines, were deposited by the immense continental glaciers that overflowed the Lake Michigan basin during the Wisconsinan glaciation, from 25,000 to 15,000 years ago. The Kankakee Plain, which also formed during this time, has a gently undulating terrain formed when torrents of meltwater from glaciers spread thick outwash deposits across the area. Bars of angular rubble reflect the erosive power of these floods. At highest flow, the meltwater became trapped and formed short-lived but areally extensive lakes. Some low moraine ridges were islands in these lakes.

The thick glacial outwash deposits in the area have been mined extensively for the production of construction aggregates. Silurian bedrock beneath the glacial deposits is exposed in quarries and along the Des Plaines River Valley. Spoil piles of this dolomite left when the Chicago Sanitary and Ship Canal was excavated through it have yielded excellent fossil specimens, including trilobites and straight cephalopods. The Illinois and Michigan Canal National Heritage Corridor cuts through the field trip area.

Meet at: Illinois-Michigan Canal State Trail, Channahon Access (Channahon Parkway State Park). To reach the park, turn southeast from U.S. 6 on the east side of the Illinois-Michigan Canal bridge. Proceed 0.4 miles southeastward, turn right (southwest) and go 0.05 miles to the park entrance. Both turns are well marked by signs.

REGISTRATION

Please assemble at the starting point before 8:15 a.m. the day of the field trip.

Trips begin immediately after registration and end about 4:00 p.m. Tours are held rain or shine. Wear comfortable clothing and walking shoes. Bring a hard hat and safety glasses if you have them; they are occasionally needed. Bring a packed lunch and arrange your own transportation. Drivers should begin the tour with a full tank of fuel. To ensure safe travel on some roads and bridges only middle-sized (12,000-lb.) or smaller school buses are permitted.

During registration at the starting point, each participant *must sign an indemnity waiver* to permit entrance to pits, quarries, and mines; this has been requested by owners of private property for their protection.

These free field trips are designed to acquaint you with the geology and mineral resources of Illinois. Each is an all-day trip (8:15 a.m. to 4:00 p.m.); frequent stops are made for exploration, discussions, and collection of rocks and fossils. People of all ages are welcome, but each grade-school student must be accompanied by a responsible adult, and high school science classes should be supervised by at least one adult for each 10 students. The trips are especially helpful to teachers planning earth science classes.

Each participant receives a field trip leaflet containing descriptions and explanations of the geology and topography along the route and at designated stops. A list of previous field trip guide leaflets is available for use in planning class tours and private outings.

ILLINOIS STATE GEOLOGICAL SURVEY

The Survey (ISGS) was established by the Illinois legislature in 1905 to study and report on the geology and mineral resources of Illinois. The survey conducts basic and applied geologic research aimed at

- locating mineral resources and providing information to Illinois citizens related to the evaluation, optimum development, and use of these resources, and
- providing basic geologic data to citizens and agencies charged with formulating sound policies for land use, waste disposal, pollution, and construction.

The ISGS also collects and stores great quantities of basic geologic information to maintain a database essential for current and future research. For more information about ISGS services or additional details about the 1989-90 field trips, call, write, or visit the Illinois State Geological Survey. Phone: (217) 333-7372 or 244-2407.

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